

# **EXHIBIT I-2**

Brandywine Communications Technologies, LLC's Preliminary Infringement Contentions Re:  
U.S. Pat. No. 7,894,472 by AT&T Corp. and SBC Internet Services, Inc. LLC

Brandywine Communications Technologies, LLC ("Plaintiff") provides the following contentions with respect to Defendants' infringement. AT&T Corp. and SBC Internet Services, Inc. (collectively "Defendant") infringe the '472 patent by using, operating, selling, and offering to sell xDSL (e.g., ADSL2, ADSL2+, HDSL, HDSL2, SDSL, SHDSL, or VDSL2) equipment, protocols and/or services; as well as using, operating, selling, and offering to sell access to xDSL networks, which comprises xDSL modems, digital subscriber line access multiplexers, line testing equipment, operations support systems, and other related equipment; (collectively, "infringing instrumentalities").<sup>1</sup> The following chart sets forth exemplary descriptions of such equipment where appropriate for illustrative purposes.

Claim No.	U.S. Pat. No. 7,894,472	Infringement
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<sup>1</sup> Unless otherwise specifically set forth herein, these contentions demonstrate literal infringement of each element of the asserted claims of the '472 patent. To the extent that Defendant alleges that a claim element is not present in the infringing product, Brandywine contends that the infringing products also meet each element under the doctrine of equivalents. More specifically, in its investigation and analysis of the infringing product, Brandywine did not identify any substantial differences between the elements of the '472 patent claims and the corresponding features of the infringing instrumentalities, as set forth herein. In each instance, the identified features of the infringing instrumentalities perform substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim elements.

Brandywine contends that Defendant directly infringes each asserted claim of the '472 patent. In addition, Defendant induces infringement of each asserted claim by, among other things, specifically intending or willfully blind to the infringement that it is causing, actively aiding and abetting others whose use of such services and products constitutes direct infringement of the '472 patent. Defendant's aiding and abetting includes, for example, distributing advertisements and instructions to others, and/or supporting their directly infringing use.

Brandywine also contends that Defendant contributes to the infringement of the '472 patent by, among other things, specifically intending or willfully blind to the infringement that it is causing, providing to others products and/or equipment for use in practicing the patented process, knowing or willfully blind to the fact that the products and/or equipment are a material part of the invention and especially made or especially adapted for use in an infringement of the '472 patent. For example, Defendant is providing equipment to others to deliver service over its xDSL network.

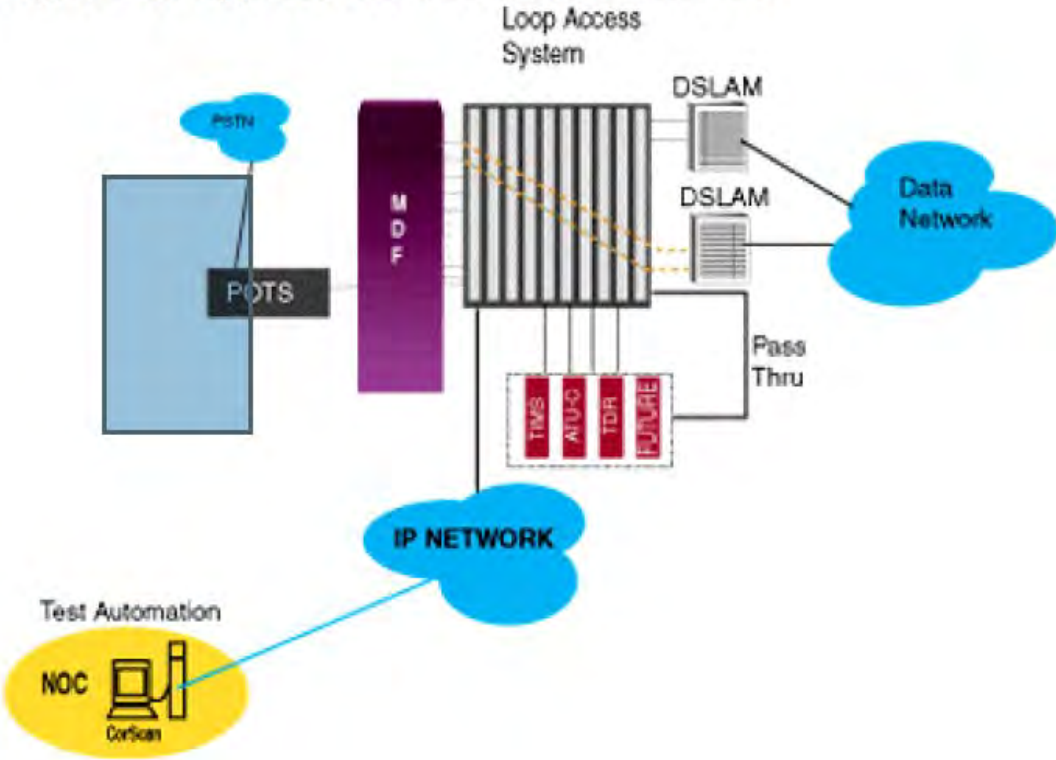
To the extent Defendant has proffered interrogatories regarding direct and/or indirect infringement, Plaintiff incorporates its responses to such interrogatories herein.

Plaintiff notes that the present contentions are necessarily preliminary for reasons including that Plaintiff has not received discovery from Defendant and that claim construction and expert discovery have not been completed in this case. Further, Plaintiff expressly reserves the right to supplement and/or amend its infringement positions if and when warranted by further information obtained during the discovery process, claim construction, or further analysis.


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1	A method comprising:	<p>The infringing instrumentalities perform a method that meets the limitation of this claim.</p> <p>The infringing instrumentalities include, for example, Defendant's modems and/or digital subscriber line access multiplexers ("DSLAMs"), which include transceivers for communicating over the subscriber loop, line testing equipment, along with other network equipment and software that interface with, control, monitor, and/or test the modems and/or DSLAMs (commonly referred to as the operations support system or "OSS").</p>
	measuring subscriber loop characteristics;	<p>The infringing instrumentalities measure the subscriber loop characteristics.</p> <p>On information and belief, Defendant operates a test environment in which it can perform loop qualification tests on the local loops.</p>

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		<p><b>Figure 1. Typical CO Test Environment</b></p>  <p>BRANDYWINE 1 ATT 000995.</p> <p>The testing environment comprises a test head in the exchange office which can, with control from an OSS, connect to the DSLAM or individual loops connected to the DSLAM. Id. The OSS, with access to the test heads, are able to perform tests that can determine available line speeds based on loop lengths and other loop characteristic parameters. BRANDYWINE 1 ATT 000997-998. The OSS may also monitor the spectral interference on a line. BRANDYWINE 1 ATT 000998.</p> <p>The OSS can automate the testing by predefining a set of test routines that can be invoked with a single command. BRANDYWINE 1 ATT 000999. The OSS can be configured to periodically monitor the line for changes in line characteristics over time. Id.</p>

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		<p>OSS systems are provided by vendors such as, for example, Oracle Corporation.</p> <div data-bbox="525 414 1115 792">  <p>The logo for Oracle Communications MetaSolv Solution. It features the word "ORACLE" in red, "COMMUNICATIONS" in black, and "MetaSolv Solution" in red. Below the text is a 3D cube with four colored faces (yellow, blue, green, red) and a central sphere.</p> </div> <p><b><u>Solution Capability</u></b></p> <ul style="list-style-type: none"> <li>• Enterprise-wide inventory convergence</li> <li>• Domain-specific: e.g. Optical, IP, Mobile, TDM, HFC, etc.</li> <li>• Order-to-Activate for VoIP and IP VPN</li> <li>• Task management through integrated work queues and assignments</li> <li>• Automation of provisioning process</li> </ul> <p>BRANDYWINE 1 ATT 001009; 1013.</p> <p>Test heads are provided by vendors such as, for example, Tollgrade.</p>

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		<div data-bbox="541 625 1291 771" data-label="Image"> </div> <p data-bbox="583 873 1264 912">www.tollgrade.com</p> <p data-bbox="525 938 934 961">BRANDYWINE 1 ATT 001035-1036.</p> <p data-bbox="525 987 1417 1015">DSLAMs are provided by vendors such as, for example, ADTRAN and ZyXEL.</p> <p data-bbox="1318 311 1927 360"><b><i>Supported OSS Features</i></b></p> <p data-bbox="1318 370 1795 409"><b>Service Qualification Testing:</b></p> <ul data-bbox="1339 418 1942 571" style="list-style-type: none"> <li>» Bulk qualification testing</li> <li>» 'Speed binned' qualification results for supporting multiple services such as ADSL, ADSL2, VDSL, IPTV and VOIP</li> </ul> <p data-bbox="1318 587 1795 626"><b>Service Performance Testing:</b></p> <ul data-bbox="1339 636 1942 912" style="list-style-type: none"> <li>» DSL fault isolation to dispatch segment (Exchange, Network, or Customer)</li> <li>» Real-time broadband performance qualification</li> <li>» Transmission capability analysis including signal loss and noise susceptibility</li> <li>» ATU-C/R detection*</li> </ul>

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		<div data-bbox="535 479 1249 901"> </div> <p>BRANDYWINE 1 ATT 001037-1038.</p> <p><b>Interfaces</b></p> <p><b>Network</b></p> <ul style="list-style-type: none"> <li>■ OC-3c</li> <li>■ DS3</li> <li>■ GIGE</li> <li>■ DS1 IMA</li> </ul> <p><b>Subscriber</b></p> <ul style="list-style-type: none"> <li>■ SHDSL 8 ports or 16 ports</li> <li>■ SHDSL IMA 16 ports</li> <li>■ SHDSL EFM 16 ports</li> <li>■ DSX-1 4 ports</li> <li>■ DS1 IMA 8 ports, dual wide card</li> <li>■ DS1 EFM 8 ports, dual wide card</li> <li>■ Voice Cell Processor 1 DS1 port</li> <li>■ DS3 Line Module 1 port</li> <li>■ Circuit Emulation 4 DS1 ports</li> <li>■ ADSL2+ 16 ports</li> <li>■ ADSL2+ with splitters 8 ports, dual wide card</li> <li>■ DS1 Frame Relay 4 ports</li> <li>■ MLPPP 4 ports</li> </ul>







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Claim No.	U.S. Pat. No. 7,894,472	Infringement
		<div data-bbox="533 321 1003 1133">  </div> <div data-bbox="1037 315 1948 1133"> <p><b>Future Proof Next Generation Multi-Service IP Access Solution</b></p> <ul style="list-style-type: none"> <li>➤ 768 ports, 17 vertical slots with a maximum configuration of 1 MSC card and 16 Line cards</li> <li>➤ Multi-service interfaces including ADSL 2/2+, G.SHDSL.BIS, VDSL 2 and VOIP</li> <li>➤ IP-aware bridge to facilitate Mac address limitation and security breach of large-scale Layer 2 infrastructure deployment</li> <li>➤ Comprehensive QoS to enhance triple play users' experience</li> <li>➤ Field proven IGMP v1, v2 snooping and proxy for IPTV deployment</li> <li>➤ Flexible ACL, VLAN-aware DHCP and Anti-IP/MAC address spoofing to prevent malicious attack</li> <li>➤ DHCP option82 relay and ARP proxy build in to boost the stability of network</li> <li>➤ PPPoAoE, TACACS+ support for legacy routers remote authentication</li> <li>➤ Cluster management to reduce multiple DSLAM administration efforts via a single IP address</li> </ul> </div> <p>BRANDYWINE 1 ATT 001039.</p> <p>On information and belief, Defendant uses DSLAM equipment from the following suppliers to provide xDSL to its customers:</p> <ul style="list-style-type: none"> <li>• ADC</li> <li>• ADTRAN</li> <li>• Alcatel-Lucent</li> <li>• Calix</li> <li>• Ericsson</li> <li>• Motorola</li> </ul>



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		<ul style="list-style-type: none"> <li>• Netgear</li> <li>• Pace</li> </ul> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><b>H2TU-C-319</b></p>  <p>Product Catalog: H2TU-C-319-L7F/L7Fx</p> </div> <div style="text-align: center;"> <p><b>H2TU-C-231</b></p>  <p>Product Catalog: H2TU-C-231-L7F/L7Fx</p> </div> <div style="text-align: center;"> <p><b>H2TU-C-388</b></p>  <p>Product Catalog: H2TU-C-388-L7F/L7Fx</p> </div> <div style="text-align: center;"> <p><b>H2TU-R-402</b></p>  <p>Product Catalog: H2TU-R-402-L7F/L7Fx</p> </div> </div> <p>BRANDYWINE 1 ATT 000776.</p>

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		<p>The company's three major product categories are Carrier Systems, Business Networking and Loop Access.</p> <p><b>Carrier Systems</b> includes broadband access products comprising Total Access (TA) 5000 multi-service access and aggregation platform products, Total Access 1100/1200 Series Fiber-To-The-Node (FTTN) products, Digital Subscriber Line Access Multiplexer (DSLAM) products, and Optical access products.</p> <p>Customer concentration is the major and foremost risk for the company. Customers such as AT&amp;T, Verizon, and CenturyLink generate a major portion of the company's revenue. As long as these giant and independent companies represent a substantial percentage of the company's sales, any reduction or loss in business from these customers could negatively impact revenue growth, thereby restricting the company's profitability.</p> <p>BRANDYWINE 1 ATT 000146-147.</p> <p>U-verse uses the Alcatel-Lucent 7330 or 7340 Intelligent Services Access Manager (ISAM) shelf, also called a video-ready access device (VRAD), deployed either in a central office (CO) or to a neighborhood serving area interface (SAI). These models are both composed of circuit boards providing service, which are fed by fiber. FTTN (fiber to the node) systems use model 7330, which uses existing copper wiring to customers' homes,<sup>[2]</sup> leading to distance limitations from the VRAD cabinet to the customer's home. The 7330 ISAM is an internet protocol DSL access multiplexer that supports VDSL and ADSL protocols.<sup>[11]</sup> FTTP (fiber to the premises) systems use model 7340, which is mostly used in areas such as new neighborhoods or large-scale developments where fiber can be run to the household, removing the distance limitations of copper. The 7340 then connects to a serving area interface, which distributes service to homes in the neighborhood, via a dual strand fiber, which is then split into 32 customer fiber pairs. The fiber pairs are typically led into a customer's residence at the network interface device.</p> <p>The VRAD typically connects upstream to an Alcatel-Lucent 7450 Ethernet service switch in the central office hub, then to the headend video hub office.<sup>[2]</sup></p>

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		<p>BRANDYWINE 1 ATT 000745.</p> <p>AT&amp;T uses Alcatel-Lucent VDSL2 equipment in most of their curb-side cabinets, which in turn are primarily fed data via fiber optics. This put AT&amp;T in a position to deliver their next generation of U-Verse on a VDSL technology, fiber optics, or a combination of the two. While it is unlikely that AT&amp;T will move to FTTH (Fiber To The Home) meaning a 100% fiber optic network such as <a href="#">Verizon's FiOS</a>, the do have plenty of options to consider that might offer impressive speed boosts to consumers.</p> <p>BRANDYWINE 1 ATT 000750.</p> <p>Ericsson is fulfilling its North American wireline dreams as AT&amp;T named the Swedish vendor as one of its main suppliers under its newly-created "Domain Supplier" Program. This development comes after reports emerged in June that AT&amp;T wanted to <b>reduce</b> its telecom vendor list. Through this program, Ericsson will be eligible to supply full system solutions for AT&amp;T's wireline access network, including IP/DSLAMs and Fiber to the X platforms.</p> <p>Ericsson said in a press release that with its GPON gear set for "general deployment, AT&amp;T will now embark on integrating Ericsson's DSL portfolio for Fiber to the Node (FTTN) and IP DSLAM solutions to support AT&amp;T's U-verse offerings, such as IPTV, High Speed Internet and VoIP over an all IP network infrastructure."</p> <p>BRANDYWINE 1 ATT 0001045.</p>

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		<p>Calix (NYSE: CALX) on Wednesday signed a deal to acquire Ericsson's (Nasdaq: ERIC) fiber access assets, including the EDA 1500 GPON Optical Line Terminal (ONT) and complementary optical network terminal (ONT) portfolios.</p> <p>The vendors said they signed a global reseller agreement where Calix will serve as Ericsson's "preferred global partner for broadband access applications." Through this arrangement, Calix's newly expanded Unified Access portfolio, including both GPON and VDSL2 copper-based solutions to 180 countries worldwide.</p> <p>BRANDYWINE 1 ATT 0001048.</p> <p>4. Defendants provide DSL modems to customers to transmit data from a customer's computer across the internet.</p> <p>5. Defendants are involved in determining the technical requirements for the DSL modems used and also for testing and deploying those modems but procure DSL modems from third-party vendors.</p> <p>6. Current DSL vendors for Defendants are Netgear, Inc., Motorola Mobility, and Pace plc. The modems from Pace are provided by Pace's subsidiary 2Wire, Inc.</p>



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		BRANDYWINE 1 ATT 000141.
	identifying a first allowable class corresponding to the measured subscriber loop characteristics, where the allowable class is chosen from a group of predefined spectrum management classes	<p>The infringing instrumentalities identify a first allowable class corresponding to the measured subscriber loop characteristics, where the allowable class is chosen from a group of predefined spectrum management classes.</p> <p>Defendant provides different types of DSL services from its DSLAMs that comply with predefined spectrum management classes specified in the ANSI standard T1.417 ("T1.417"). See generally <i>id.</i> at 5.3. The T1.417 provides guidelines for defining spectrum management classes corresponding to the various DSL services:</p> <p><b>5.5 Example systems of spectrum management classes</b></p> <p>Some example systems of spectrum management classes (SMC) are:</p> <ul style="list-style-type: none"> <li>– SMC 1: Basic Rate ISDN and SDSL with a line bit rate (LBR) satisfying <math>LBR \leq 288</math> kbps;</li> <li>– SMC 2: SDSL with an LBR satisfying <math>288 \text{ kbps} &lt; LBR \leq 528</math> kbps;</li> <li>– SMC 3: HDSL and SDSL with an LBR satisfying <math>528 \text{ kbps} &lt; LBR \leq 784</math> kbps;</li> <li>– SMC 4: HDSL2;</li> <li>– SMC 5: ADSL with non-overlapped spectra and RADSL;</li> <li>– SMC 6: VDSL;</li> <li>– SMC 7: SDSL with an LBR satisfying <math>1168 \text{ kbps} &lt; LBR \leq 1568</math> kbps;</li> <li>– SMC 8: SDSL with an LBR satisfying <math>784 \text{ kbps} &lt; LBR \leq 1168</math> kbps; and</li> <li>– SMC 9: ADSL with overlapped spectra.</li> </ul> <p><i>Id.</i> at 5.5.</p> <p>Defendant provides xDSL services to competitive local exchange carriers ("CLECs"), and these services comply with spectrum management classes.</p> <p>When CLECs request a DSL capable loop, they must specify the PSD number associated with the Spectrum Management Class of the technology deployed over the loop. The NC/NCI combination input on the LSR indicates the PSD number.</p>

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		<p>BRANDYWINE 1 ATT 001088.</p> <h2 data-bbox="541 370 1934 456">AT&amp;T Wholesale Agreement</h2> <p data-bbox="541 488 1927 959">The High Frequency Spectrum shall be available for any version of xDSL complying with Spectrum Management Class 5 of ANSI T1.417, American National Standard for Telecommunications, Spectrum Management for Loop Transmission Systems. BellSouth will continue to have access to the low frequency portion of the Loop spectrum (from 300 Hertz to at least 3000 Hertz, and potentially up to 3400 Hertz, depending on equipment and facilities) for the purposes of providing voice service. Level 3 shall only use xDSL technology that is within the PSD mask for Spectrum Management Class 5 as found in the abovementioned document.</p> <p>BRANDYWINE 1 ATT 001105; 1220.</p>

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		Protocol	Protocol Option	Definition
		DU	Digital Access Interface @ End User Premises	
				Cannot be ordered without a Protocol Option
			001	Spectrum Management Class 1.
			002	Spectrum Management Class 2.
			003	Spectrum Management Class 3.
			004	Spectrum Management Class 4.
			005	Spectrum Management Class 5.
			007	Spectrum Management Class 7.
			008	Spectrum Management Class 8.
			00A	ADSL Using Discrete Multi-Tone (DMT) format
			00H	HDSL per <b>Ericsson (previously known as Telcordia Technologies)</b> TA-NWT-001210



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		Protocol	Protocol Option	Definition
		QB	Central Office Manual Cross Connect Termination With No Sub-Rating Capability For Non-Multiplexed Facilities Only. (Note: can be, but not limited to Collocation)	
				Cannot be ordered without a Protocol Option
			00	MDF Cross-Connect
			001	Spectrum Management Class 1 w/unspecified cross connect cable shielding requirements.
			002	Spectrum Management Class 2 w/unspecified cross connect cable shielding requirements.
			003	Spectrum Management Class 3 w/unspecified cross connect cable shielding requirements.
			004	Spectrum Management Class 4 w/unspecified cross connect cable shielding requirements.
			005	Spectrum Management Class 5 w/unspecified cross connect cable shielding requirements.
			007	Spectrum Management Class 7 w/unspecified cross connect cable shielding requirements.
			008	Spectrum Management Class 8 w/unspecified cross connect cable shielding requirements. (Available in East region only)
		<p>BRANDYWINE 1 ATT 001063; 1072.</p> <p>On information and belief, Defendant's central office equipment complies with the T1.417 spectrum management class definitions, and Defendant's OSS is able to identify the spectrum management classes that are allowable on each subscriber loop.</p> <p>On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.</p>		
	selecting an operating transceiver from a group of transceivers within a	The infringing instrumentalities select an operating transceiver from a group of transceivers within a device, where each transceiver is configured to communicate in a respective at least one of the predefined spectrum management classes, and where the selected operating transceiver is configured to communicate in the first allowable class.		

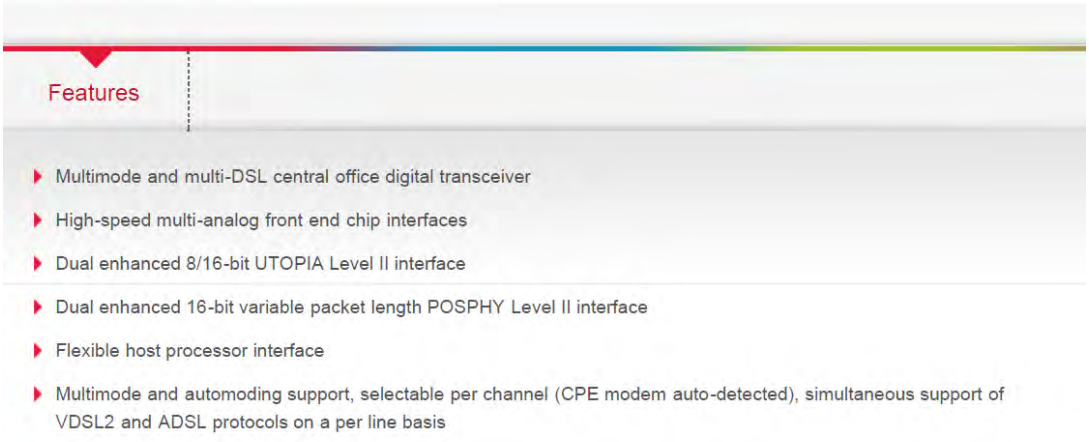
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	device, where each transceiver is configured to communicate in a respective at least one of the predefined spectrum management classes, and where the selected operating transceiver is configured to communicate in the first allowable class; and	<p>On information and belief, Defendant’s equipment includes a plurality of selectable transceivers that can operate over a subscriber loop. For example, Defendant’s OSS or other equipment can couple a transceiver corresponding to a mode of operation, for example allow one transceiver to failover to another in the event that the first transceiver malfunctions.</p> <p>Each transceiver corresponds to a set of spectrum management classes. Defendant’s equipment complies with the G.997.1 standard, which describes the physical layer management for xDSL transmission systems. G.997.1 at 1. The standard specifies a management information base (“MIB”). Id. at Summary, 7. The MIB contains information that defines what types of transmissions systems are allowed by the near-end transmitter unit on each line. Id. at 7.3.1.1.1. The xTU transmission system enabling (xTSE) data is an 8-octet bitmap with each bit indicating whether a particular DSL service of transmitter is allowed.</p> <p><i>Octet 3</i></p> <table><tr><td>17</td><td>Reserved.</td></tr><tr><td>18</td><td>Reserved.</td></tr><tr><td>19</td><td>G.992.3 operation over POTS non-overlapped spectrum (Annex A of [ITU-T G.992.3]).</td></tr><tr><td>20</td><td>G.992.3 operation over POTS overlapped spectrum (Annex A of [ITU-T G.992.3]).</td></tr><tr><td>21</td><td>G.992.3 operation over ISDN non-overlapped spectrum (Annex B of [ITU-T G.992.3]).</td></tr><tr><td>22</td><td>G.992.3 operation over ISDN overlapped spectrum (Annex B of [ITU-T G.992.3]).</td></tr><tr><td>23</td><td>G.992.3 operation in conjunction with TCM-ISDN non-overlapped spectrum (Annex C of [ITU-T G.992.3]).</td></tr><tr><td>24</td><td>G.992.3 operation in conjunction with TCM-ISDN overlapped spectrum (Annex C of [ITU-T G.992.3]).</td></tr></table> <p>Id. On information and belief, Defendant’s OSS uses this information to select an operating transceiver for a local loop.</p> <p>In addition, a physical transceiver may comprise a plurality of logical transceivers, each selectively operable over a subscriber loop. For example, certain DSLAMs may implement a selection mechanism for a given type of DSL protocol.</p>	17	Reserved.	18	Reserved.	19	G.992.3 operation over POTS non-overlapped spectrum (Annex A of [ITU-T G.992.3]).	20	G.992.3 operation over POTS overlapped spectrum (Annex A of [ITU-T G.992.3]).	21	G.992.3 operation over ISDN non-overlapped spectrum (Annex B of [ITU-T G.992.3]).	22	G.992.3 operation over ISDN overlapped spectrum (Annex B of [ITU-T G.992.3]).	23	G.992.3 operation in conjunction with TCM-ISDN non-overlapped spectrum (Annex C of [ITU-T G.992.3]).	24	G.992.3 operation in conjunction with TCM-ISDN overlapped spectrum (Annex C of [ITU-T G.992.3]).
17	Reserved.																	
18	Reserved.																	
19	G.992.3 operation over POTS non-overlapped spectrum (Annex A of [ITU-T G.992.3]).																	
20	G.992.3 operation over POTS overlapped spectrum (Annex A of [ITU-T G.992.3]).																	
21	G.992.3 operation over ISDN non-overlapped spectrum (Annex B of [ITU-T G.992.3]).																	
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24	G.992.3 operation in conjunction with TCM-ISDN overlapped spectrum (Annex C of [ITU-T G.992.3]).																	

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		<p><b>Operating Mode Selection Mechanism for ADSLx</b></p> <p>Depending on the supported operating modes by the ATU-R, the ATU-C will give priorities according to following list, assuming the operator allowed all supported operating modes to be executed :</p> <ol style="list-style-type: none"> <li>1. G.992.5 (ADSL2plus), Annex M</li> <li>2. G.992.3 (ADSL2), Annex M</li> <li>3. G.992.5 (ADSL2plus), Annex A or B (exclusive)</li> <li>4. G.992.3 (ADSL2), Annex A or L (*), or B (exclusive)</li> <li>5. G.992.1 (ADSL), Annex A or B (exclusive)</li> <li>6. G.992.2 (ADSL-lite), Annex A</li> <li>7. T.413 (ANSI-ADSL) or ETS 101 388 Annex C (exclusive)</li> </ol> <p>(*) When the ATU-R supports as well G.992.3 Annex L (READSL2), then priority selection between Annex A and Annex L is configurable by operator, and based on optimising the downstream or the upstream bitrate.</p> <p>BRANDYWINE 1 ATT 001373.</p> <p>Certain modems are capable of selecting a mode using "automode." G.997.1 at 7.3.1.1.10. In this situation, multiple DSL service modes are enabled in the MIB, and selection of the mode is made based on achievable data rates under given loop conditions. Id. On information and belief, the plurality of selectable logical transceivers are implemented in chip logic and/or software.</p>

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		<p><b>Multi-DSL Transceiver</b></p> <p>The BCM6519 is a multimode and multidensity DSL transceiver and an advanced and flexible solution for DSLAM, MSAN and FTTx deployments.</p> <p>This DSL DSP can be combined with Broadcom's low power analog front end devices to enable all combinations of ADSL2+ line cards, multi-DSL line cards, and VDSL2-only line cards up to profile 30a.</p> <p>Request Product Info to learn more about Broadcom products or contact a <b>Manufacturer Representative</b> in your area.</p>  <p>BRANDYWINE 1 ATT 001412.</p> <p>On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.</p>
	enabling the operating transceiver.	<p>The infringing instrumentalities enable the operating receiver.</p> <p>Defendant's OSS or other equipment can enable a transceiver for a subscriber loop. For example, Oracle's OSS solution MetaSolv is able to automate the provisioning services. BRANDYWINE 1 ATT 001013.</p> <p>In addition, in a case where a physical transceiver comprises a plurality of logical transceivers, certain DSLAMs may implement an enabling mechanism for a given type of DSL protocol. BRANDYWINE 1 ATT 001373. Certain modems are</p>

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		capable of enabling a mode using "automode." G.997.1 at 7.3.1.1.10. On information and belief, such functionalities are implemented in chip logic and/or software. BRANDYWINE 1 ATT 001412.  On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.
2	The method of claim 1, wherein each spectrum management class defines transmit power requirements.	The infringing instrumentalities operate with spectrum management classes that define transmit power requirements.  The T1.417 standard defines the multiple spectrum management classes, each with different PSD requirements. T1.417 at 1.1, 5.3.1.1, 5.3.1.3, 5.3.2.1, 5.3.2.3.
3	The method of claim 1, wherein each spectrum management class defines transmit power spectral density (PSD) requirements.	The infringing instrumentalities operate with spectrum management classes that define transmit power spectral density (PSD) requirements.  The T1.417 standard defines the multiple spectrum management classes, each with different PSD requirements. T1.417 at 1.1, 5.3.1.1, 5.3.2.1.
4	The method of claim 1, wherein the spectrum management classes are defined by a standard.	The infringing instrumentalities operate with spectrum management classes that are defined by a standard.  The T1.417 standard defines the multiple spectrum management classes. T1.417 at 5.5.

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6	<p>The method of claim 1, further comprising: determining that the selected operating transceiver is not currently compatible with the first allowable class; and</p>	<p>The infringing instrumentalities determine that the selected operating transceiver is not currently compatible with the first allowable class.</p> <p>As defined in the G.997.1 standard, the MIB includes information on performance and fault monitoring. G.997.1 at 7. The MIB also contains status parameters, including parameters for the transmission system currently in use. Id. at 7.5.1.1.</p> <div data-bbox="533 521 1709 1101"> <p>The diagram illustrates the structure of a Management Information Base (MIB) according to the G.997.1 standard. It is divided into two main sections: 'Configuration data' and 'Operational data'. The 'Configuration data' section contains three stacked boxes: 'Line config. profile', 'Channel config. profile', and 'Data path config. profile'. The 'Operational data' section is further divided into two sub-sections: 'CONFIGURATION' and 'FAULT MONITORING'. The 'CONFIGURATION' sub-section contains 'Line failures' and 'Line threshold crossing'. The 'FAULT MONITORING' sub-section contains 'Channel threshold crossing' and 'Data path failures'. Arrows indicate that the 'Line config. profile' maps to 'Line failures', the 'Channel config. profile' maps to 'Channel threshold crossing', and the 'Data path config. profile' maps to 'Data path failures'.</p> </div> <p>Id. at Fig. 7-2.</p> <p>On information and belief, Defendant's OSS and other equipment is able to monitor DSLAMs and detect when an operating transceiver is not capable of operating in a mode that is compatible with at least one spectrum management class.</p> <p>On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.</p>
	identifying a second allowable class	<p>The infringing instrumentalities identify a second allowable class corresponding to the measured subscriber loop characteristics and select a transceiver that is compatible with the second allowable class.</p>



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	corresponding to the measured subscriber loop characteristics; and selecting a transceiver that is compatible with the second allowable class.	<p>On information and belief, Defendant's OSS and other equipment is able to select a second operating mode for a DSLAM modem. Defendant's equipment complies with the G.997.1 standard, which describes the physical layer management for xDSL transmission systems. G.997.1 at 1. The standard specifies a management information base. Id. at Summary, 7. The MIB contains information that defines what types of transmissions systems are allowed by the near-end transmitter unit on each line. Id. at 7.3.1.1.1. The xTU transmission system enabling (xTSE) data is an 8-octet bitmap with each bit indicating whether a particular DSL service of transmitter is allowed. Id. On information and belief, Defendant's OSS uses this information to select a second operating transceiver for a local loop.</p> <p>In addition, in a case where a physical transceiver comprises a plurality of logical transceivers, certain DSLAMs may implement an enabling mechanism for a given type of DSL protocol. BRANDYWINE 1 ATT 001373. Certain modems are capable of enabling a mode using "automode." G.997.1 at 7.3.1.1.10. On information and belief, such functionalities are implemented in chip logic and/or software. BRANDYWINE 1 ATT 001412.</p> <p>On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.</p>



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7	<p>The method of claim 1, further comprising: determining which one of the transceivers optimizes performance; selecting the one transceiver that optimizes performance.</p>	<p>The infringing instrumentalities determine which one of the transceivers optimizes performance and selecting the one transceiver that optimizes performance.</p> <p>On information and belief, Defendant's equipment includes a plurality of selectable transceivers that can operate over a subscriber loop. On information and belief, Defendant's OSS and other equipment is able to select a transceiver for a particular loop.</p> <p>Defendant's equipment complies with the G.997.1 standard, which describes the physical layer management for xDSL transmission systems. G.997.1 at 1. The standard specifies a management information base. Id. at Summary, 7. The MIB contains information that defines what types of transmissions systems are allowed by the near-end transmitter unit on each line. Id. at 7.3.1.1.1. The xTU transmission system enabling (xTSE) data is an 8-octet bitmap with each bit indicating whether a particular DSL service of transmitter is allowed. Id. On information and belief, Defendant's OSS uses this information to select an operating transceiver that optimizes performance.</p> <p>In addition, in a case where a physical transceiver comprises a plurality of logical transceivers, certain DSLAMs may implement an enabling mechanism for a given type of DSL protocol. BRANDYWINE 1 ATT 001373. Certain modems are capable of enabling a mode using "automode." G.997.1 at 7.3.1.1.10. On information and belief, such functionalities are implemented in chip logic and/or software. BRANDYWINE 1 ATT 001412.</p> <p>On information and belief, review of Defendant's information produced in discovery, including review of source code, will confirm that the infringing instrumentalities meet this limitation.</p>